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PAY AS YOU EARN

The system of the Income Tax, which had been gradually evolved at once to suit the Treasury's requirements and to graduate the burden on the tax-payer, worked with reasonable smoothness when the tax was light, the exemption limit high enough to exclude the majority of manual workers, and incomes did not vary rapidly in origin or amount. It has, however, proved to be unfitted for the taxation of fluctuating earned incomes, especially those received weekly as wages.

The basis of the Tax is the total earned in a fiscal year. This is not known till April 5th, and before the last war the whole tax would have been payable on the following January 1. The first modification was to divide the payment in equal parts, payable on January 1 and July 1, so that in fact the maximum time-lag between earning and paying was about 27 months (say, April 6th 1941 to July 1st 1943). In the case of a manual worker a modification was made, income being reckoned for each six months, say April 6th—October 5th, 1941, and the tax being paid during the six months February to July 1942, an average time-lag of 10 months and a maximum of 15 months. Whereas a man with a moderately large income could look forward and, if he had exceptional receipts, put aside a sum for the corresponding income-tax when it became due (if he could foresee the rate of tax), a working-class family usually budgets week by week, and if savings are made when earnings are high, they are not earmarked and may not be available for tax when needed.

The apparently simple solution of deduction by the employer of a fixed percentage weekly off earnings less a fixed abatement, is not

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universally applicable because of the two definite bench-marks for taxation, namely the exemption limit, and the increased rate of taxation on taxable incomes over £165 per annum. If earnings are irregular one or other of these marks may be passed. Thus the exemption limit for a married man with one child is £190, or £3 13s. 1d. weekly, and the point from which the higher tax is paid is £355 or £6 16s. 6d. weekly. If his earnings fluctuate from £3 to £7 he may from time to time pass both limits. Now in assessing income-tax the year is the unit, at the end of the year the tax deducted should equal the statutory amount ; but that amount is not known till the year's end, while the tax is deducted weekly. The method proposed in the White Paper[1] is to assume at any week that the average weekly earnings for the part of the year already elapsed will also be the average for the whole year, to assess the annual tax on this basis, and state the proportion due by the end of the week in question. Then the tax payable for that week is the excess of the amount so reckoned over that paid up to the end of the previous week. The excess may become a deficit, owing to a fall in earnings, and then a refund is made. In the case of absence through illness, the refund on the return of the earner may be considerable.

This process is essentially complicated, but may be made reasonably clear by an example (White Paper pp. 16—17).

A married man with one child has an allowance of £190. His earnings for the first 26 weeks of the year amount to £227 18s. 6d.

Presumed annual income 52/26 of £227 18s. 6d.		£455 17 0
Earned income relief 1/10th=£45 11 8		
Allowances	190 0 0	235 11 8
Taxable income		220 5 4
Tax for whole year £165 at 6s. 6d.=£53 12 6		
£55 at 10s. 0d.=£27 10 0		£81 2 6
Tax for 26 weeks		£40 11 3(*a*)*
Earnings in 27th week £8 4s. 0d., total for 27 weeks £236 2s. 6d.		
Presumed annual income 52/27 of £236 2s. 6d.=£454 15s. 3d.		
Earned relief	45 9 5	
Allowances	190 0 0	235 9 5
Taxable Income		219 5 10
Tax for whole year £165 at 6s. 6d.=£53 12 6		
£54 at 10s. = 27 0 0		80 12 6
Tax for 27 weeks		41 17 3 (*b*)*
Tax payable in 27th week		1 6 0

* In the Table in the White Paper (a) is given as £40 and (b) as £41 14s. 0d., presumably because the amounts are taken from tables with rather wide grading.

It is, of course, not supposed that this complicated sum is worked out each week for each wage earner. Tables are prepared which give the sum due for any given number of weeks for a range of wages, and for a number of codes applying each to a grade of allowances.

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[1] A New System for the Taxation of the Weekly Wage Earner. Cmd. 6469.

In fact the formulae for the tax are algebraically simple.

Write £D for annual allowances, less income from house-ownership, etc.
£W for aggregate earnings in n weeks, £w in nth week
£I for taxable income for the whole year, on the basis of the first n weeks.

$$I=(W-1/10W)\times\frac{52}{n}-D$$

Case 1. I not greater than 165, i.e. W not greater than 10 n (D+165) / 468.

Tax for n weeks at 6s. 6d. in £ is

$$£I\times\frac{n}{52}\times\frac{13}{40}=\frac{117}{400}W-n.\frac{D}{160}$$

Tax chargeable for nth week$=70.2w-\frac{3}{2}D$ *pence*

Thus in the example White Paper p. 20, where w=4 and D=140, the weekly tax is 280.8 − 210 = 70.8d., which is taken as 70d. in the Table.

Case 2. I > 165. Add to the 6s. 6d. tax 3s. 6d. for each £ in (I—165) to assess the annual tax.

$$\text{We have } £\frac{117}{400}W-n.\frac{D}{160}+\frac{n}{52}(I-165)\times\frac{7}{40}$$

$$=£\frac{9}{20}W-\frac{n}{52}\left(\tfrac{1}{2}D+\frac{231}{8}\right)$$

for the tax for n weeks.

The weekly tax chargeable is :

$$9w-\frac{5}{26}(D+57\tfrac{3}{4})\ \textit{shillings}$$

For a man earning £10 in any week, with allowances of £190, this would be 90s.—47s. 8d.=£2 2s. 4d.

The tax so stated is simple, being a proportion of weekly wages less a uniform reduction, and in ordinary circumstances as a man's earnings go up or down the tax rises or falls in an obvious way; but in the White Paper the Tables are in grades which are relatively wide in the earlier months of the year and the result is that occasionally the tax payable in a week rises when the wages fall. In any case the resulting system is too complicated for explanation to any except practised arithmeticians.

In a letter to the *Times* (October 9, 1943) Messrs. A. T. Haynes and R. J. Kirton suggest a simplified procedure analogous to that outlined above, together with the provision of tables which would show when it is necessary to pass from Case 1 to Case 2 or *vice versa*, or when the presumed income fell below the exemption limit.

There is the further complication that when earnings fall or the earner is sick, he may have paid more, say in the first 26 weeks, than is due after his illness, say in the 30th week ; or he may have been taxed in the early part of the year when his annual taxable income was over £165, but later the higher rate becomes inappropriate.[1] However, a refund of tax is pleasurable to the recipient, whether he understands it or not, and it is rightly claimed that the method tends to equalize net earnings over the year and may produce useful money at a time when it is specially needed. Similarly the hypothetical father (White Paper p. 18) will not object to receiving £18 16s. cash on January 30th in consequence of his second child having been born on January 23rd, but his colleague whose family increases on April 7th will perhaps not understand why he only immediately benefits by a reduction of 6s. 3d. in his tax.

The same method is applicable to salaries paid monthly or at any other intervals. When income other than the particular salary concerned can bear reduction of the allowances and also include the £165 at the reduced rate, the tax to be taken off salaries is simply 9s. in the £. Complications appear, however, in the case of mixed incomes, such as salaries for two or more part-time jobs and miscellaneous earnings, the income being part under Schedule D, part under Schedule E, while tax at the full rate is taxed at the source from any dividends etc.

In brief, the change from the point of view of the Exchequer is the ante-dating of the tax under Schedule E by about six months, remitting at once the months that overlap. If the taxable income multiplied by the rate of tax in the remitted tax is less than that in the first period under the new system, the Exchequer gains immediately, and it is problematical how and when the balance of gain or loss should be estimated. In any case it is unimportant, since the rate of tax can be modified in accordance with the Treasury's needs. From the point of view of the body of payers the effect is roughly to transfer payments to an age group about six months younger than the existing groups. The individual will have no outstanding liability when he retires, the novice will start payment sooner after commencing work.

A. L. Bowley.

THE PROBLEM OF 'SMALL' SAVINGS

1. The recently published inquiry of Mr. Madge into the 'War-time Pattern of Saving and Spending'[2] provides some interesting data which contribute to the elucidation of the character of 'small' savings. The object of a budget and interview inquiry[3] were two large samples of manual workers' and small salary earners' families in Leeds, in the periods February—May and June—August 1942 respectively. The results of this survey show that about 4 per cent. of gross incomes was

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[1] The simplest case is that of complete absence from sickness, say for four weeks. The allowance of $\frac{3}{2}$D. pence for each of four weeks is made in a lump sum from the wages in the first week after return to work. If this allowance exceeds the net earnings in that week a refund is made of that excess.

[2] National Institute of Economic and Social Research, Occasional Paper IV.

[3] The Budget inquiry was based on regular family budget records. The interview inquiry applied where people refused to keep budgets ; it attempted to obtain data on income, spending, and saving in the past week by interviews.

devoted to National Savings (p. 34). In an Appendix Mr. Rothbarth introduces a correction to this figure based on the fact that in the budget inquiry and in the interview inquiry in the second half of the survey (June—August) the percentage of saving was much higher than in the interview inquiry in the first half of the survey. He attributes this difference to the greater reliability of the budget inquiry and to the improvement of interviewing in the second half of the survey. The correction he introduces raises the percentage of savings in relation to gross income to about 5 per cent. (p. 133). This figure gives a basis for estimating the total rate of National Saving of manual workers and small salary earners by applying the above percentage to the appropriate aggregate income. The results of such a calculation must, however, be treated with great caution for two reasons : (1) Leeds may not be representative for the whole country, and (2) what is probably more important, the above percentage of savings obtained for Leeds may be too low because some people refused to be interviewed, and this may introduce a certain bias into the sample ; for, as Mr. Rothbart puts it, ' thrift and secretiveness may correlate.'

This second objection to the validity of the results of the survey may, however, be accounted for by estimating a plausible upper limit for the bias in question. Out of all budgets and interviews attempted in the second half of the survey, 63 per cent. were successful, 9 per cent. doubtful or inadequate, and 28 per cent. were refusals.[1] (p. 28). The cases classified as doubtful and inadequate are those where the total amount of income did not square with spending, tax payment and saving. From various particulars given about this category in the report, it does not seem that these people were particularly heavy savers. We shall therefore assume that the percentage of saving in this category is the same as in successful budgets and interviews. It is in the case of refusals where we may suspect a correlation between secretiveness and thrift. We shall assume that half of the refusals were very heavy savers, and the other half saved at a normal rate. This assumption probably exaggerates the connection between secretiveness and thrift, because there are quite a lot of other reasons for not being interviewed, the simplest of which being that people may not like to be bothered. It follows from the above assumptions that 86 per cent. are taken to save at the rate of 5 per cent. of their income while the remaining 14 per cent. are much heavier savers. We shall assume for them a rate of saving of 20 per cent. The resulting average rate of saving would then be 7 per cent. On this basis the Leeds rate of National Saving in 1942 was between 5 and 7 per cent. of income. Of course, this rate of saving may still not be representative for Great Britain as a whole ; still, the amount obtained from the application of this percentage to the wage-bill and small salary bill will not be devoid of significance.

According to the White Paper (Cmd. 6438) and after a rough deduction of pay and allowances to H.M. Forces,[2] the wage-bill was in 1942 about £2,860 million and the salary bill £1,360 million. Further, it may be estimated that in 1938 salaries below £250 a year constituted less, but not very much less, than 40 per cent. of the total salary bill.[1] Thus, if we add to the wage-bill 40 per cent. of the salary bill we obtain a reasonable figure for the wage- and small salary-bill. On this assumption we obtain £3,400 million.[2] Applying to this 5—7 per cent., obtained above as the rate of National Savings in relation to income, we arrive at £170—240 million. We may thus say that if the Leeds percentage of saving is representative for Great Britain the contribution of manual workers and small salary earners to National Savings in 1942 was of the order of £200 million. This compares with the aggregate of about £600 million of small savings in 1942. It is more correct, however, to compare the £200 million working class savings with the £465 million invested in National Saving Certificates and Post Office and Trustee Savings Banks, because manual workers and small salary earners are not likely to buy National Defence Bonds, the subscriptions to which amounted to about £135 million. Thus working class saving would make 40 to 50 per cent. of the increase in Saving Bank Deposits and National Saving Certificates. It may be asked how the rest of the small savings assets were absorbed. A certain part could still, even in 1942, be transfers from other assets. But this part is not likely to have been large in 1942. The rest might be current saving out of incomes of pensioners, wives of service men, of small shop-keepers and farmers—which again is not likely to amount to much—and out of medium and large incomes, in particular that done by wives and juniors.

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[1] 25 per cent. total refusals and 3 per cent. cases where the husband refused information about the money retained by him.

[2] *Cf.* BULLETIN Vol. 4, No. 7, pp. 107, 108.

2. Mr. Madge's report includes also an inquiry into a sample of Post Office Savings Bank accounts in Glasgow and Aberdeen. The changes in deposits were examined in half yearly intervals from November 1938 to May 1941. Its results are therefore unfortunately not comparable with those of the Leeds survey. The Savings Bank enquiry indicates that in the period, November 1939—May 1941, about one-third of Post Office savings in Glasgow and about 40 per cent. in Aberdeen was due to increases in individual deposits by £150 or more in any half yearly interval examined. (p. 89 ; actually these rates of one-third and 40 per cent. relate to the balance of increases and decreases in deposits by £150 or more in any half year examined.) Clearly this part of deposits corresponds to transfers or current savings of large savers. Out of the remaining increase in deposits 55 per cent. in Glasgow and 68 per cent. in Aberdeen was due to manual and black-coat workers ; the rest were savings of traders (24 and 14 per cent.) or juniors (21 and 18 per cent.) It follows that the current savings of manual and black-coated workers in Glasgow and Aberdeen were of the order of 40 per cent.[3] of the total increase in Post

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[1] From ' Changes in Salaries in Great Britain,' by Joan Marley and H. Campion, *Studies in the National Income* edited by A. L. Bowley in conjunction with the data on the aggregate salaries of shop assistants (whom we classify throughout as salary earners) and on the total salary bill.

[2] The percentage error in this figure caused by an even relatively large error in the small salary-bill is of no importance.

[3] By multiplying 2/3 by 55 per cent. and 0.6 by 68 per cent. we obtain 37 per cent. and 41 per cent. for Glasgow and Aberdeen respectively. Corrections for two factors should be introduced here : working class ' savings ' may still, and most probably do, include transfers amounting to less than £150 in half a year ; some of the junior savers are certainly working class. Both corrections are probably not very large and act in opposite directions.

Office Savings Bank deposits. Mr. Madge states repeatedly that working-class savings are invested to a much greater extent in Savings Banks than in National Savings Certificates ; thus the share of workers in small savings, even excepting National Defence Bonds, must have been appreciably less than 40 per cent. in the period November 1939—May 1941. This compares with 40 to 50 per cent. obtained above on the basis of the Leeds inquiry for 1942.

3. The results arrived at above will be helpful in the analysis of the trend of small savings which is shown in half-yearly intervals from 1940 up-to-date (it is the continuation of the table given in this BULLETIN a year ago[1]).

TABLE I.

Rate of Small Savings

£ million

	3% Defence Bonds	National Saving Certificates *	Savings Bank Deposits †
1940 April—Sept.	94	88	71
1940/41 Oct.—March	96	97	102
1941 April—Sept	90	109	111
1941/42 Oct.—March	92	136	117
1942 April—Sept	55	99	115
1942/43 Oct.—March	56	125	145
1943 April—Sept.	69	170	146

* Inclusive of the accrued interest.

† Inclusive of the accrued interest not credited to depositor's account.

After small savings reached their lowest level in the middle of 1942, they have shown since that time a spectacular increase. In the article quoted we attributed the fall in 1942 to many medium and large investors having reached the statutory limit in National Defence Bonds and National Saving Certificates, and we took it as an illustration of the considerable share of transfers and large savers in the National Savings. To what, then, is to be attributed the reversal of the tendency since that time ? Let us analyse National Defence Bonds, National Saving Certificates and Post Office and Trustee Savings Banks separately.

With regard to National Defence Bonds we notice that the high level of 1941 has not been regained. The relatively high figure of the period April—September 1943 is swollen by the Wings for Victory Campaign, (March—June 1943) and the consideration of the period after its end shows that the average for the calendar year 1943 will be appreciably lower. The position of National Savings Certificates is more complicated. It is now obvious that the low level in April—September 1942 was partly a reaction to the ' effort ' made in the Warship Weeks Campaign which swelled the figure for October—March 1941-42. During saving campaigns some people probably transfer money to National Saving assets from other investments, but in the subsequent period they partly offset it by investing their current savings in the latter. After elimination of this factor the level of savings in National Saving Certificates in April—September 1942 would probably be close to the (half-yearly) average for the calendar year 1942 which was £115 million. A corresponding figure for April—September 1943 is—judging from the period preceding and following the Wings for Victory Campaign—something of the order of £150 million (instead of £170 million).

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[1] ' The Fall of Small Savings,' BULLETIN Vol. 4, No. 15.

This figure, however, is not strictly comparable with that of 1942 for another reason : it includes subscriptions to the new issue of National Saving Certificates the interest on which is not tax-free and which was made for the benefit of investors who have reached the statutory limit in the old National Saving Certificates. In the period January—June 1943 the subscriptions to this new issue of Saving Certificates made about 10 per cent. of the total increase in Saving Certificates.[1] Thus £115 million in 1942 is comparable to something like 90 per cent. of £150 million, i.e. to £135 million in 1943. We thus obtain the following picture :

TABLE 11.

Adjusted Saving in National Saving Certificates (old issue)

	Half-yearly rate £ million
Mid-1941	109 *
Mid-1942	115
Mid-1943	135

* The figure April—September 1941 from Table I ; it differs little from the average of 1941 which was £107 million.

The net sales of National Saving Certificates thus adjusted show a continuous rise which was, however, much greater from mid-1942 to mid-1943 than in the preceding period. The same tendency can be noticed in the Post Office and Trustee Savings Bank Deposits. (See Table I ; adjustments like those made for National Saving Certificates are not necessary here, because Warship Weeks and Wings for Victory Campaigns did not disturb this series to a great extent.) We are thus still left with the question why the increase of small savings between 1942 and 1943 was considerably higher than between 1941 and 1942. With regard to National Saving Certificates the explanation may be the combination of two tendencies : (1) working class savings increased steadily throughout the period considered. (2) many medium and large investors reached the statutory limit between mid-1941 and mid-1942. The latter factor cannot affect the trend of Savings Bank Deposits because in these not the total amount of deposits but the yearly increase is limited (to £500). In both types of assets the slowing down from 1941 and 1942 could also be due to the saturation of transfers of small investors who exhausted their transferable assets.

But it is also not excluded that the *current* small savings increased more quickly from 1942 to 1943 than from 1941 to 1942. From mid-1941 to mid-1942 the wage-bill increased by about 15 per cent., the prices of consumption goods by 7 per cent., and the income tax paid by wage-earners by 4 per cent. of the wage-bill. This means a rise in the real wage-bill after taxation by 3 per cent. From mid-1942 to mid-1943 the wage-bill increased by 6 per cent., the prices of consumers' goods by 2 per cent. and the income tax out of wages by something like 1 per cent. of the wage-bill, which leaves 3 per cent. for the rise in the real wage-bill after taxation. But although both these increases are equal their incidence on savings is different. In 1941—42 both the real wage bill and the burden of income tax on wages rose more sharply than in the following year. Now while it is reasonable to assume that the rise in the real wage bill was distributed not very unevenly over all income groups, the burden of the rise in taxation was concentrated upon the better paid wage earners. According to Mr. Madge's inquiry working class saving is due mainly to a relatively small number of heavy savers (who have relatively high wages)[1] and these savers would be especially hard-hit by the rise in income tax. It is quite likely that these factors affected in a similar way the savings out of medium incomes. Thus the acceleration in the rise of the rate of saving in National Certificates and Savings Bank deposits from 1942 to 1943 as compared with 1941 to 1942 may reflect also a change in current savings out of small and medium incomes.

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[1] *Cf. Banker*, October 1943, p. 12.

M. KALECKI.

COAL IN THE FIFTH YEAR OF WAR

The coal industry received unusual publicity during October. A number of minor unauthorised strikes indicated the tension within the industry. The growing discrepancy between target figures and actual output caused some misgivings. The Greene Tribunal reported evidence of a slackening of the effort of miners, announced the failure of the district bonus scheme, and recommended its replacement by a pit bonus system. The Mineworkers Federation issued a statement of policy demanding, among other things, higher basic wages, the release of miners from the forces, and the abolition of dual control. The Coal Debate in the Commons (October 13th and 14th) in which members of both sides of the House expressed uneasiness about the position, brought forward the Government's provisional reply partly from the spokesman of the Ministry, partly from the Prime Minister. In substance it said: no general release of miners from the forces, no substantial alterations in the arrangements of dual control, but scope for wage adjustments, more recruiting and more training for miners, and a wider use of existing powers if necessary. To deal with a serious bottleneck in the war economy by merely shelving the problem would hardly be a responsible policy. It must therefore be surmised that the Government's view about the seriousness of the coal situation differs from that of the public, and the Prime Minister's statement lends support to the opinion that the situation is not as critical as people suppose it to be. As the public has only a fraction of the information available to the Government we can only survey the forces which will operate on the demand and supply side and indicate broadly their relative strength, having regard to the facts published and to statements of policy made during the year.

I. PROSPECTIVE DEMAND

1. *Home Demand.* No absolute figures of home consumption of coal have been published. We know that last year's fuel economy campaign resulted in considerable savings by industrial consumers and by domestic consumers (of together about 8 million tons). How much the mild winter helped in reducing domestic consumption is uncertain, but it is said that in an average winter domestic consumption might well rise

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[1] According to the Leeds inquiry more than 50 per cent. of working class National Saving is done by 10 per cent. of families. 'Heavy' saving tends on the average to begin with a gross income of about £6 10s. per week for a couple with one child (pp. 68, 69).

several million tons above last year's level, assuming the same degree of voluntary economy.

Industrial consumption (except for gas and electricity) will be less influenced by climatic conditions and be mainly determined by the volume of production and fuel efficiency. Additions to total employment in 1943/44 are likely to be small compared with last year. Industrial demand will therefore not be appreciably greater unless (*a*) economies effected by the Fuel Efficiency Committees are lost, or (*b*) output shifts from industries consuming relatively little coal per unit of employment to industries consuming relatively more coal per head. As to the first factor, the Government may reasonably hope, not only to maintain, but to increase economies through the vigorous action of the Fuel Efficiency Committees and by what is called ' programming,' i.e. the allocation of coal of different quality to different industries according to priority schedules. The effects of a shift in employment between industries on coal consumption is more difficult to assess. The major transfer of workers from ' supply ' to ' aircraft production ' which is now in progress would seem to the layman to yield a saving in fuel, or at any rate not to create extra demand. But even if such shifts did tend to increase demand, this could be partly offset by treating coal as a critical bottleneck—like shipping a year ago—and reducing coal consumption of low priority industries in the non-essential sector. In other words, if, for instance, potteries were coal-intensive industries, pottery production for civilian users could be reduced at least temporarily to make up for the extra demand for coal due to shifts in the essential sector.

We may therefore assume that industrial demand at home need not, on balance, be greater than last year, provided the Fuel Efficiency Committees provide some further savings. Domestic consumption on the other hand will be higher if we assume the same degree of economy but a colder winter.[1]

2. *Export Demand* is reported to have increased as military operations in the Mediterranean extended. Progress in Italy and the invasion of other parts of Europe will greatly add to the demand for coal. It may very well be that by the end of this year exports to the Mediterranean will run at an annual rate of 10 million tons or more. There would seem to be little scope for savings in other export directions, except perhaps in bunker coal for ships of which other countries might supply a greater part than in the past. We may therefore assume that normal war-time exports will continue at the existing level while military operations will demand substantial extra supplies.

Taking home and foreign demand together it seems almost certain that coal demand in the winter 1943/44 will be considerably higher than in the previous winter. What then are the prospective supplies ?

II. PROSPECTIVE SUPPLIES

The coal debates of June and October have thrown some light on the trends of coal production. There are a number of factors which make for a decline in output.

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[1] The special appeal to domestic consumers of gas and also of electricity (but the latter is influenced by aircraft production which is an electricity-intensive industry) may indicate merely a shift from coal to gas and electricity but it may indicate also a rise in total domestic consumption.

1. Manpower in recent months declined because wastage exceeded inflow. That the number of optants (about 3,000 in the first nine months of the operation of the scheme) and recruitment of juveniles will not fill the gap was obvious before the onset of winter. Conscription, the latest device, can, of course, provide 30—40,000 men. But the productivity of conscripts is usually lower in industry than that of volunteers and increases rather than reduces ill feeling in the industry. New entrants will in any case reach their full productivity only after some months of training and for the older workers the strain of continuous work will make itself felt. The age composition of mine workers will not materially improve, and the ratio of face workers to surface workers can at best be maintained at the lower level which has become normal in wartime. With some effort the Government may succeed in preventing a serious fall in the numbers employed, but it may be more difficult to maintain the number of shifts worked per man. This is influenced among other things by the degree of avoidable and unavoidable absenteeism. The former was put at 4½%, the latter at 8% in the June debate, but there are many reports indicating that absenteeism has increased since. Efforts are being made to reduce it, but there is no single remedy against the complex of reasons for absenteeism and, as Mr. Churchill has pointed out, the phenomenon can be observed in all belligerent countries and the tendency for absenteeism to increase slightly is general in the fifth year of war.

The volume of mining employment, which is the product of the number of workers and number of shifts worked, cannot for all these reasons be expected to rise in the present coal year, and may very well fall.

2. Given the volume of employment, output of coal depends on productivity per unit of employment. Many of the factors making for a decline in labour productivity have been widely discussed.

The changing age composition, the irregular and insufficient flow of new entrants and their inferior training, the shortage of equipment and spares, delays in supply and transport, fatigue through working overtime and many other factors will tend to depress productivity below what could normally be expected. It is therefore remarkable that productivity was relatively well maintained, particularly productivity at the coal face. It would be unwise, however, not to budget for a further moderate decline of productivity over the next twelve months.

3. The arguments put so far justify some anxiety about the supply position ; changes in manpower, in shifts worked and in labour productivity are likely to produce, on balance, an absolute fall in coal ouput, while home demand will equal or exceed last year's figure and foreign priority demands may increase considerably. There are, however, counteracting factors which might ease the stringency.

a. First of all, mechanisation of mines will proceed ; both American and British machinery will be supplied on an increasing scale. The effect will begin to make itself felt in the current year and offset partly the prospective fall in labour productivity. No data have been given about the hoped-for increase in coal output from the planned investment in mining machinery. Pre-war figures for this country are inconclusive ; they suggest, however, that the effect of mechanisation on output may be counter-balanced by other factors and that it would, therefore, be dangerous to assume that increased mechanisation would enable the mining industry to maintain present per head output. It may be observed, however, that in countries where mechanisation was combined with concentration (large-scale mining) output per manshift rose very considerably.

TABLE I.

Progress of Mechanisation and Output per Shift in G.B.

Per cent. of total output won:		*1929*	*1934*	*1938*	*1943*
By cutting machines		28	47	59	65*
By conveyors		14	37	54	65*
Output per man-shift	(cwts)	21.7	22.9	22.6	ca.21

* Hansard, October 13, col. 1004.

TABLE II.

Mechanisation and Output per Man-shift in different countries

	Per cent. of coal won mechanically				*Output per Man-shift (cwts)*			
	G.B.	*U.S.A.*	*Polish Silesia*	*Ruhr*	*G.B.*	*U.S.A.*	*Polish Silesia*	*Ruhr*
1926	22	70	22	66	18.5	81.0*	23.7	21.9
1934	47	78	37	97	22.9	80.0*	38.5	33.0

* approx.

TABLE III.

Mechanisation, Concentration and Output in the Ruhr

	Number of workings		*Output per working per day*		*Output per man per year*	*% of coal won by mech. means*	*Length of conveyors*
	No.	1927 =100	*tons*	1927 =100	*tons*	%	Km.
1927	16,700	100	23	100	308	83	—
1929	12,500	75	30	130	350	93	—
1932	5,111	31	59	257	386	96	292
1934	4,075	22	94	408	433	97	330
1938	3,280	20	122	530	441	97	640

b. Secondly, technical improvements will help in another way. Open cast mining is being developed vigorously. The Ministry of Works, which is responsible for this form of mining, announces that so far over 5 million tons of outcrop coal were produced, and it has been suggested elsewhere that the rate could be stepped up to 10 or 15 million tons per annum if deliveries of equipment could be speeded up sufficiently. In any case production this summer exceeded an annual rate of 5 million tons, and although a seasonal fall must be expected during the winter months, total output for the 12 months ending September 1944 may well be close to 8 million tons.

TABLE IV.

Weekly Rate of Production from Outcrops (thousand tons)

Oct. 1942	*Jan. 1943*	*March 1943*	*June 1943*	*Aug. 1943*	*Oct. 1943*
54	26	51	90	135	126

c. Thirdly, although the Government has refused on political grounds to abolish dual control, the Minister reiterated that he would use his power to control inefficient producers, to direct output into more efficient mines, to make better use of Production Committees and so forth. How much such administrative improvements will contribute towards maintaining or raising coal output is impossible to say, but it is generally admitted that to neglect them may mean serious trouble.

d. Fourthly, when we argued that labour productivity was likely to decline, we assumed that other things would remain equal. If, however, new incentives are offered which extract extra effort from the workers, the fall in productivity which otherwise would have occurred might be checked. The substitution of a properly designed pit bonus scheme for the ineffectual district bonus arrangement may be such an incentive to spur the miners to increased efforts during the winter months. Since compulsory concentration is resisted by owners and miners, a pit bonus system may be designed in such a way that it induces miners to shift to better (more efficient) mines. Such shifts would, if controlled and encouraged by the Regional Organisation of the Ministry, tend to raise output per head by restoring the competitive forces which are perhaps unduly restricted under the present controls. Many other incentives, monetary and non-monetary ones, have been suggested (some of them were discussed in BULLETIN Vol. 5, No. 10) and in the view of the Mineworkers Federation the abolition of dual control would be an important one.

In an attempt to estimate the net effect of these four forces making for greater efficiency we must keep in mind that mechanisation and open cast mining will certainly make a positive contribution, while improved Government controls and a policy of incentives are merely potential sources of increased supplies, and that it is uncertain whether these cards will be played in good time and with a good grace. If we assume moderate success in all four directions these expansionary forces may well balance the contractionist forces due to the decline in the volume of employment and in labour productivity. Thus on this assumption we could reckon at least with constant total output, and taking into account that additions were made last year to our coal stock, this would satisfy 'normal' home demand in an average winter and 'normal' export demand. But the word ' normal ' hides one major problem which was emphasised again and again in the recent debates : the abnormal demand arising from the extension of military operations in Europe. It is this extra demand which produces the bottleneck and explains the public's anxious scrutiny of the situation.

4. How can this extra demand be satisfied ? The answer for the medium run can only be, by abnormal supplies, that is (*a*) from stocks and (*b*) from overseas supplies.

a. The present stock position is not easy to assess. It was stated that we ended the winter 1941/42 with about 14 million tons of coal in stock, and the winter 1942/43 with stocks considerably higher, say 17 million tons. Whether stocks were relatively depleted during the summer is not known, but we are assured that pre-winter stocks are still higher this year than they were last year. Global stock figures are, however, misleading ; much will depend upon the proportion of free or readily available reserves in the total, and upon the provision of the right type of coal required for priority exports. Adequate 'programming' can provide the latter, and the Government's stocking policy can determine to some extent the proportion of free reserves to reserves held privately in trade and industry. If, for instance, coal stocks in spring 1944 were of the order of 15 million tons, and if only 5 million tons represented free reserves of the right kind, even this amount would meet a substantial part of the prospective extra demand, at least in the short run.

TABLE V.

Sources of Supply.

	South Africa				U.S.A.				U.K.			
	1929	*1935*	*1938*	*1942*	*1929*	*1935*	*1938*	*1942*	*1929*	*1935*	*1938*	*1942*
Output (mill. t.)	13.1	14.6	17.5	22.0*	609	424	395	580	258	222	227	202
Export §	1.4	1.3	1.0	—					60	39	36	8–10‡
(mill. t.) ‖	1.5	1.2	1.3	—	19	10	11	—	16	14	11	—
Employment (000's)	33	29	34	37†	688	565	537	600*	952	755	782	710
Sea Route ** in miles	5,000—6,000				4,000—5,000				2,500—3,000			

* estimate. † 1940.
‡ '5 % of current disposals' according to the Iron and Coal Trades Review, July 1943.
§ = cargo ‖ = bunker. ** Home port to Naples.

TABLE VI.

Output per man per year (metr. tons).

	G.B.	*U.S.A.*	*S.Africa*	*Ruhr*	*Pol. Silesia*
1927	246	791	397	308	360
1937	314	835	515	476	549

In the longer run other resources must be tapped, and the Prime Minister hinted that the Combined Resources Board may take a hand in providing extra supplies. There is indeed no reason why Great Britain, with an exceptionally high degree of mobilisation, should bear the full burden of freeing supplies for the Continent.

Table V illustrates some of the points which the Combined Resources Board will have to take into consideration. (*a*) Any sudden large scale demand can be met only by the two largest producers, Britain and U.S.A., while South Africa and U.S.A. could take an important part in planned-for regular supplies. Other areas could also, like Great Britain, attempt to build up stocks to meet emergency demands. (*b*) A unit increase in employment would seem to give the highest increment in output in U.S.A., followed closely by South Africa, while Britain is a long way down the list. This fact, taken in conjunction with the relatively tighter labour position in this country compared with South Africa and U.S.A., where transfers from other industries (e.g. from gold mining in South Africa) or greater reservation of miners, extensions of working time, fuel efficiency campaigns etc., are still possible, would seem to make it sensible from the United Nations' point of view to expand coal output in other areas and not to attempt to force it up unduly in Great Britain. (*c*) The supply elasticity of the various areas must, however, be considered in relation to the shipping position. The journey from South African ports via Port Said to the Mediterranean is more than twice as long (though perhaps less risky) as the route from convenient British ports, and the routes from U.S.A. and Canada are more than 50% longer than the supply lines from Great Britain. Whether the overall savings in tonnage through the opening up of the Mediterranean and the reduction in shipping losses generally will make it possible to divert tonnage for hauling coal over larger distances in a year when military operations on the Continent reach a climax is impossible to say for anybody outside the Shipping Board.

The risk remains, however, that the necessary steps to release sufficient quantities of American coal for overseas will not be taken.[1] Moreover, it cannot be excluded that the shipping margin may decrease again in future, that severe climate may push up domestic demand, that output may fall more than can be foreseen now, or that export demand for the Continent may exceed estimates. The cushion of stocks in Great Britain would then wear thin rapidly. To insure against such risks it would still be safer to have plans ready for a wartime reorganisation of the mining industry and for fuel rationing.[2] The peak of demand may after all be reached in the winter 1944/5, at the beginning of which stocks in this country will be lower than they are now, having been drawn upon during the summer campaigns.

F. BURCHARDT.

DIARY

WAR PROFITS IN THE UNITED STATES

The following figures show to what extent American corporate enterprise has prospered under war conditions.

*Total Corporate Profits in the U.S.**

(Billions of $)

	1929	1936—39	1939	1940	1941	1942	1943 †
Profits before Taxes	9.2	4.5	5.3	7.4	13.9	18.8	23—25
Profits after Taxes	8.0	3.3	4.1	4.8	6.9	6.9	8.0
Net Dividend Payments	5.8	4.2	3.9	4.1	4.4	4.0	

* Source : Survey of Current Business, June 1943. † Estimate.

The amount of net corporate profits, after deduction of corporation and excess profits tax, increased from $3.3 billions in the pre-war years 1936—39 to $6.9 billions in 1941. Though the rise in profits *after* tax was held up in 1942, a further increase took place this year, and the total for 1943 is estimated at $8 billions. As dividend payments have not increased as compared with pre-war years the increase of net profits to more than twice the pre-war amount led to a substantial rise in corporate savings.

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[1] For 1943 consumption of bituminous coal is estimated at 600 million tons, while production will be about 590 million tons. The labour force in the bituminous mines decreased by about 10 per cent. since the summer of 1942 and the decline continues. Weekly working hours, however, increased by 15 per cent.

[2] *C.f.* BULLETIN Vol. 4, Nos. 7, 11 and 14.

That profits after tax could rise so much in spite of Excess Profits Tax can be explained very easily by the character of the E.P.T. itself. The standard profit is determined either on the basis of pre-war earnings (earnings standard) or on the basis of invested capital (capital standard), according to the choice of the taxpayer. In the first case, 95% of the average earnings of 1936—39 are standard profits, but for the earnings of one bad year 75% of the average earnings of the other years can be substituted. In the second case, the standard profits are graduated from 8% to 5% for successive portions of invested capital. The excess over this standard profit is taxed at the rate of 90% (10% of which are post-war credit). A very important provision is that E.P.T. and corporation income tax together must not take away more than 80% of the corporation's net income : From a certain point on, the corporation will therefore always get at least 20% of an increase in profits.

As the level of activity in pre-war years was not very high, the application of the capital standard must result in considerable increases in net profits in some lines (railways !) Apart from this, the limitation of the combined taxes to 80% leaves space for considerable increase in profits in those cases where the increase in activity has been phenomenal, such as in the aircraft industry.

The increase in net profits shown above understates the extent to which corporations have actually profited, because it does not take into account the considerable additional depreciation which has been allowed to war industries.